

Linda G. Stuntz' Responses to additional questions
regarding the hearing entitled "Federal Power Act: Historical Perspectives"
held on Wednesday, September 7, 2016
before the House of Representatives' Subcommittee on Energy and Power

The Honorable Morgan Griffith

Q1: DO YOU BELIEVE THAT THE MARKETS ARE ADEQUATELY COMPENSATING BASELOAD PLANTS FOR THEIR UNIQUE ATTRIBUTES (INCLUDING DEPENDABILITY AND RELIABILITY) THEY PROVIDE THE GRID?

A: Some are; some are not. The North American Electric Reliability Corporation (NERC) has identified a number of "Essential Reliability Services" that are necessary to preserve reliable service. These include reactive power and voltage support. Many of these Essential Reliability Services have been provided by base load power plants, but they can also be provided by non-baseload plants. In those parts of the country experiencing the most rapid increase in renewable generation resources, there is less demand for baseload power and more need for ramping capability and quick start capability to keep supply and load in balance. This is illustrated by the California Independent System Operator's "Duck Curve," that I discussed in my testimony. While the rest of the country does not feature load curves like this now, high wind resource areas such as Texas and the Midwest are discovering that they also need more resources to "firm up" wind. Once the services needed to maintain reliability are fully identified, those services can be provided via cost-based rates or through markets.

Q2: WHAT REFORMS DO YOU THINK COULD BE MADE TO ENSURE BASELOAD PLANTS — PARTICULARLY COAL-FIRED POWER PLANTS — ARE ADEQUATELY COMPENSATED FOR THESE ATTRIBUTES?

A: Essential Reliability Services need to be identified. Then all those who can provide those services should be compensated based on the market for that service or at a cost-based rate. This would ensure that all generation sources that provide these services are fairly compensated.

Q3: IF BASELOAD UNITS ARE FORCED TO CLOSE — BY A COMBINATION OF MARKET DYNAMICS, UNFAVORABLE MARKET RULES, AND ESCALATING REGULATORY COSTS — WILL IT REQUIRE A MAJOR RESTRUCTURING OF TRANSMISSION INFRASTRUCTURE?

A: In the Energy Policy Act of 2015, FERC was directed to provide incentives for investment in transmission, which had been lagging. FERC implemented this direction in Order No. 679, and it has worked to encourage substantial new investment in transmission. In part because of this new investment, the transmission system has been able to adapt to a 15% decline in coal fired generating capacity between the end of 2010 and May 2016, according to a July 26, 2016 Energy Information Administration report. However, it is becoming increasingly difficult to site any kind of energy infrastructure, including electric transmission and natural gas pipelines. If substantial additional coal and nuclear generation is retired, sufficient time must be allowed to plan and construct

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transmission to access alternative supplies of power, including renewable generation, which generally is not located near load, except for rooftop solar. New natural gas pipeline infrastructure will also be needed to fuel new natural gas plants. If the development of this new infrastructure does not occur in time to replace retiring plants, reliability could be damaged.

Q3A: HAVE THE COST AND IMPACT OF MASSIVE NEW TRANSMISSION FACILITIES BEEN EVALUATED IF MAJOR BASELOAD STATIONS CONTINUE TO CLOSE?

A: The impact of baseload plant retirements has generally been assessed on a case-by-case basis by the utility owner and/or the RTO or ISO in which the facility is located. Determining who should pay for the cost of new transmission to reach renewables is a challenge in many areas of the country, and is a barrier to a number of these projects.

Q4: WHAT EFFECT DO RENEWABLE ENERGY SUBSIDIES AND MANDATES HAVE ON THE GRID AND OUR BULK POWER SUPPLY — PARTICULARLY ON RELIABILITY?

A: FERC and the Electric Reliability Organization, which is NERC, seek to ensure the reliability and security of the Bulk Power System, the high voltage transmission system. In general terms, they work to see that the system is planned and operated in a way that maintains reliability despite some outages of generation and lines. The matter of supply adequacy is largely entrusted to states, although as we discussed at the hearing, RTOs and ISOs now play a role in ensuring supply adequacy. The increasing amounts of renewable power do create challenges for proper management of the Bulk Power System and to maintain supply adequacy when the availability of these resources cannot be precisely predicted. But the electric industry and regulators at all levels are working to address these challenges through upgrades to the system to improve its flexibility, improved forecasting capabilities, and better understanding the need for services such as voltage ride through. Before any resource is interconnected at the transmission or distribution levels, studies must be performed to insure that this resource can be properly managed and will not create a reliability problem.

Thus far, the system has proven resilient, but except for California, and the states of Iowa, South Dakota and Kansas, where wind produced more than 20% of their total generation in 2015 (EIA Report of September 27, 2016), renewable generation remains a relatively small fraction of total generation. As the amount of renewable generation increases, the challenge of maintaining reliability will also increase.

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Q4A: HOW ARE BASELOAD UNITS AFFECTED BY THESE MARKET PREFERENCES?

A: It is hard to determine how much public policy preferences for certain renewable resources have affected baseload generation as compared to the low price of natural gas, environmental regulation and the role of NRC regulation for nuclear plants. The CEO of the owner of the Diablo Canyon nuclear power plant has said that California's public policy choices for renewables and efficiency made it appropriate to retire Diablo Canyon. Whether these choices have had such a direct effect on other baseload plants that are being retired is unclear. However, nuclear and other "baseload" generation was built to run at high capacity factors (operating most of the time) and may not be economic or able to ramp up and down or operate at lower capacity factors. To the extent these plants cannot operate at high capacity factors, therefore, their viability is challenged.

Q4B: HAVE THESE PREFERENCES CONTRIBUTED TO THE CLOSURE OF CERTAIN BASELOAD UNITS- PARTICULARLY COAL-POWER UNITS?

A: Yes, but the relative contribution of these preferences as compared to low natural gas prices and environmental regulation is unclear.

The Honorable Paul Tonko

Q1: IT IS CLEAR THAT TODAY'S GRID IS DIFFERENT THAN 20 YEARS AGO, AND IT IS CONTINUING TO CHANGE RAPIDLY. MR. SMITH'S TESTIMONY EXPLAINED HOW DIFFERENT TECHNOLOGIES AND GRID MANAGEMENT TECHNIQUES ARE TESTING THE BOUNDARIES BETWEEN FEDERAL AND STATE JURISDICTIONS. TOMORROW'S GRID WILL RAISE EVEN MORE QUESTIONS WITH THE GROWTH IN STORAGE CAPACITY AND MICROGRIDS.

A:

Q1A: ARE THERE ANY LESSONS WE CAN LEARN FROM FERC'S ACTIONS IN THE 1980s AND 1990s ON HOW TO PLAN FOR THESE IMPENDING CHANGES, WHICH WILL MAKE OUR GRID AND ELECTRICITY MARKETS EVEN MORE COMPLICATED THAN THEY ARE TODAY?

A: I fear electricity markets already are too complicated for mere mortals to understand, and yet the lesson of the 1980s and 1990s is that the government does a lousy job of picking technology and resource winners and losers. Electricity is absolutely vital to our quality of life and our economy, and will become even more so, but reliance on properly structured and well-functioning markets will produce the best outcomes for consumers. We also need to keep in mind the differences in resources, regulation and ownership of the electric system across the country. What works in New York may not work in Ohio

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or Missouri. Flexibility must be retained for the states and regions to find the solutions that make sense for them, but that do not impose unfair burdens on neighbors.